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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/748,623	12/22/2000	Richard A. Keeney	MGI-174	4584

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EXAMINER	
SHAPIRO, LEONID	

ART UNIT	PAPER NUMBER
2673	

DATE MAILED: 11/18/2003

14

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/748,623	KEENEY ET AL.	
	Examiner	Art Unit	
	Leonid Shapiro	2673	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 October 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13,15-27 and 29-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13,15-27 and 29-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1-2,7-13, 15-16, 21-27, 29-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Henley (US Patent No. 5,459,410) in view of Kurogane (US Patent No. 6,259,424 B1) and Hiroki (US Patent No. 6,618,115 B1).

As to claim 1, Henley teaches a method for repairing inoperative pixels in liquid crystal display comprising: identifying defective pixel (See Fig. 3b, item 20, 32, in description See Col.6, Lines 11-19 and Col. 7, Lines 33-39); disconnecting the defective drive circuitry from inoperative pixel (See Fig.14, items 11, 17, in description See Col. 12, Lines 28-32); connecting the inoperative pixel to a working drive circuit of nearby pixel, nearby pixel comprising one of adjacent or a non-adjacent pixel (See Fig. 14, items 11, 317, in description See Col. 12, Lines 32-36).

Henley does not show connection to a working drive circuit of nearby pixel, nearby pixel comprising one of adjacent pixel, instead he shows connection to the redundant TFT of the same pixel.

Kurogane shows how the desired driver could be connected to fix a defect in displayed image (See Fig. 7, items 7A,7B,2A,2B,33, in description See Col. 9, Lines 52-64). It would have been obvious to one of ordinary skill in the art at the time of the invention to use driver as shown

by Kurogane in the Henley apparatus and method for repairing panels having sufficiently few defects (See Col. 2, Lines 8-9 in the Henley reference).

Henley and Kurogane do not show micro-display having complimentary metal-oxide semiconductor (CMOS) control chip containing CMOS drive circuitry and do not show identifying and repairing complimentary metal-oxide semiconductor (CMOS) drive circuitry for inoperative pixel after fabrication of CMOS control chip.

Hiroki teaches methods of identifying and repairing complimentary metal-oxide semiconductor (CMOS) drive circuitry for inoperative pixel after fabrication of CMOS control chip (See Figs 5-6, items 301-307, in description See Col. 6, Lines 16-28 and 51-67, Col. 10, Lines 4-8).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use CMOS driver for repairing inoperative pixels as shown by Hiroki in Kurogane and the Henley apparatus and method for micro–display in order to repair panels having sufficiently few defects (See Col. 2, Lines 8-9 in the Henley reference).

As to claim 15, Henley teaches a liquid crystal apparatus capable of repairing inoperative pixels comprising: a plurality of pixels, drive circuitry for controlling the pixels (See Fig. 1, items 11, 13, 15, in description See Col.4, Lines 49-65); means for disconnecting the defective drive circuitry from inoperative pixel (See Fig.14, items 11, 17, in description See Col. 12, Lines 28-32); means for connecting the inoperative pixel to a working drive circuit of nearby pixel, nearby pixel comprising one of adjacent or a non-adjacent pixel (See Fig. 14, items 11, 317, in description See Col. 12, Lines 32-36).

Henley does not show connection to a working drive circuit of nearby pixel, nearby pixel comprising one of adjacent pixel, instead he shows connection to the redundant TFT of the same pixel.

Kurogane shows how the desired driver could be connected to fix a defect in displayed image (See Fig. 7, items 7A,7B,2A,2B,33, in description See Col. 9, Lines 52-64). It would have been obvious to one of ordinary skill in the art at the time of the invention to use driver as shown by Kurogane in the Henley apparatus for repairing panels having sufficiently few defects (See Col. 2, Lines 8-9 in the Henley reference).

Henley and Kurogane do not show micro-display having complimentary metal-oxide semiconductor (CMOS) control chip containing CMOS drive circuitry and do not show identifying and repairing complimentary metal-oxide semiconductor (CMOS) drive circuitry for inoperative pixel after fabrication of CMOS control chip.

Hiroki teaches methods of identifying and repairing complimentary metal-oxide semiconductor (CMOS) drive circuitry for inoperative pixel after fabrication of CMOS control chip (See Figs 5-6, items 301-307, in description See Col. 6, Lines 16-28 and 51-67, Col. 10, Lines 4-8).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use CMOS driver for repairing inoperative pixels as shown by Hiroki in Kurogane and the Henley apparatus for micro–display in order to repair panels having sufficiently few defects (See Col. 2, Lines 8-9 in the Henley reference).

As to claims 2, 16, Henley teaches a method for repairing inoperative pixels in display with providing additional circuitry associated with each pixel in the display, which circuitry

connects the inoperative pixel to the working drive circuit (See Fig. 14, items 11, 317, in description See Col. 12, Lines 32-36).

As to claims 7-8, 21-22, Henley teaches disconnecting the defective drive circuitry is accomplished by severing a via connecting the defective drive circuitry to the inoperative pixel by the laser ablation (See Fig. 14, items 11, 17, in description see Col. 12, Lines 28-42).

Henley does not show a resistive connection between neighboring pixel metal layers.

Kurogane teaches to connect nearby pixel (See Fig. 7, items 2A,2B,33).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the resistive connection and severing via in the Kurogane and Henley apparatus and method in order to repair panels having sufficiently few defects (See Col. 2, Lines 8-9 in the Henley reference).

As to claims 9-10, 23-24 Henley teaches disconnecting the defective drive circuitry is accomplished by severing a via connecting the defective drive circuitry to the inoperative pixel by the laser ablation (See Fig. 14, items 11, 17, in description see Col. 12, Lines 28-42).

Henley does not show a capacitive connection between neighboring pixel metal layers.

Kurogane teaches to connect nearby pixel (See Fig. 7, items 2A,2B,33).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the capacitive connection and severing via in the Kurogane and Henley apparatus and method in order to repair panels having sufficiently few defects (See Col. 2, Lines 8-9 in the Henley reference).

As to claims 9-10, 23-24 Henley teaches disconnecting the defective drive circuitry is

As to claims 11, 25, Kurogane teaches pixels repaired in groups (See Fig. 10A, 10B, items yi and yi+1, in description See Col. 10, Lines 52-58).

As to claims 12,26, Henley teaches identifying defective drive circuitry comprises the further step of providing test circuitry associated with the display (See Fig. 3A and 3b, in description See Col. 12, Lines 44-58).

As to claims 13,27, Kurogane teaches pixel drive circuitry associated with each pixel is located separately from each pixel (See Fig. 4, items 1A,3A,1B,3B, in description See Col. 7, Lines 1-33).

As to claims 29-32, Hiroki teaches defective CMOS drive circuitry is identified after the CMOS control chip and the liquid crystal material assembled together via optical inspection of the display after assembly of display (See Figs 5-6, items 301-307, in description See Col. 6, Lines 16-28 and 51-67, Col. 10, Lines 4-8).

2. Claims 3-4, 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Henley and Kurogane and Hiroki as aforementioned in claims 3 and 16 in view of Yamazaki et al. (US Patent No. 6, 147, 667).

Henley and Kurogane and Hiroki do not show additional circuitry with a bypass bit latch, such when bypass bit latch is set from an external memory, the detective drive circuitry is bypassed and the inoperative pixel is driven from the working drive circuit of the nearby pixel.

Yamazaki et al. teaches the latch circuit controlled the bit signals (See Fig. 12B and 12C, items 63-71, in description See Col. 24, Lines 1-7).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use bit latch as shown by Yamazaki et al. in the Kurogane, Henley and Hiroki apparatus and method in order to repair panels having sufficiently few defects (See Col. 2, Lines 8-9 in the Henley reference).

3. Claims 5, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Henley and Kurogane and Hiroki as aforementioned in claims 3 and 16 in view of Yang (US Patent No. 6,392,427 B1).

Henley and Kurogane and Hiroki do not show multiplexing the drive circuits of each pixel with the drive circuit of a nearby pixel.

Yang teaches multiplexer and drive array to route test patterns (See Fig 4, items 400, 406, 408, in description see Col. 4, lines 55-59).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use multiplexer as shown by Yang in the Kurogane, Henley and Hiroki apparatus and method in order to repair panels having sufficiently few defects (See Col. 2, Lines 8-9 in the Henley reference).

4. Claims 6,20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Henley and Kurogane and Hiroki as aforementioned in claims 3 and 16 in view of Anholm et al. (US Patent No. 5,043,655).

Henley and Kurogane and Hiroki do not show tri-state transistor associated with each pixel connected to the bypass latch and resistor coupling neighboring pixels, such that when the

bypass bit is set, the transistor is switched to bypass the detective drive circuitry so that the inoperative pixel is driven from the working drive circuit of a nearby pixel through resistor. Kurogane teaches to connect nearby pixel (See Fig. 7, items 2A,2B,33).

Anholm et al. teaches tri-state control (See Fig. 4, items 50-56, in description see Col. 7, Lines 29-45).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a tri-state transistor with bypass latch and resistor as shown by Anholm et al. in the Kurogane, Henley and Hiroki apparatus and method in order to repair panels having sufficiently few defects (See Col. 2, Lines 8-9 in the Henley reference).

Response to Amendment

5. Applicant's arguments filed on 10-01-03 with respect to claims 1-13 and 15-27 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

The Pinkman (US Patent No. 6, 518, 945 B1) reference discloses replacing defective circuit elements by column and row shifting in a flat-panel display.

The Katoh et al. (US Patent No. 5, 926, 156) reference discloses matrix type image display using backup circuitry.

Telephone inquire

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid Shapiro whose telephone number is 703-305-5661. The examiner can normally be reached on 8 a.m. to 5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 703-305-4938. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

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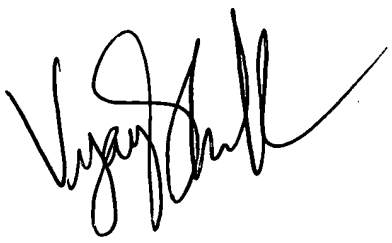

VIJAY SHANKAR
PRIMARY EXAMINER